APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
THIRD SEMESTER M. TECH DEGREE EXAMINATION
Electronics & Communication Engineering
(Robotics And Automation)
04EC7921 AI FOR ROBOTICS

Max. Marks : 60   Duration: 3 Hours

PART A
Answer All Questions
Each question carries 3 marks

1. Explain about hybrid deliberative/reactive paradigm?

2. What are animal behaviors?

3. Mention the applications and working of ultrasonic sensor?

4. What is landmark and gateways?

5. Explain about HIMM sonar model?

6. Demonstrate Sonar sensor model?

7. Explain about the Turing test approach?

8. Define intelligent agent with and example?

PART B
Each question carries 6 marks

9. Demonstrate the application of Artificial Intelligence?

OR

10. Explain nested hierarchical controller representative architecture?

11. Design a Level- 0 subsumption architecture for a robot and compere with Level-1 and level-2?

OR

12. Explain about different types of primitive potential fields?

13. Describe about sensor fusion, sensor fission and sensor fashion?

OR

14. Give three reasons why multi-agents are desirable. Describe the general attributes of applications which are well-suited for multi-agents, and give one example.?

15. How associative methods are applied for topological navigation in autonomous robot explain any one method?

OR

16. Describe the difference between continuous and event-driven re planning. Which would be more appropriate for a planetary rover? Justify your answer.

P.T.O

17. Explain how continuous localization and mapping eliminate the problems with shaft encoders in autonomous robot?

OR

18. Find the conditional probabilities P(H|s) for the given sonar reading?
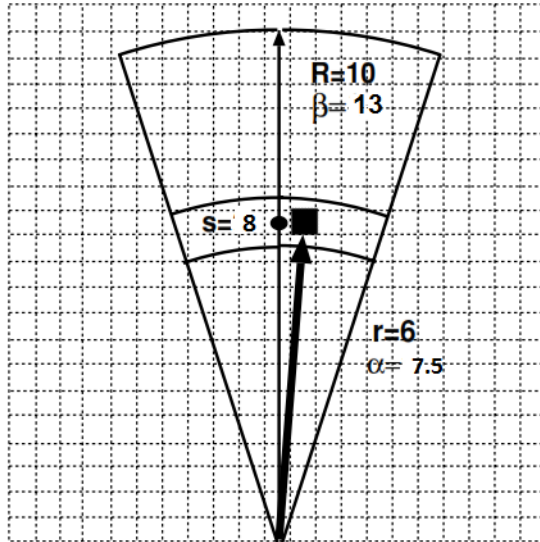
P(s=8|Occupied) = 0:75
P(s=8|Empty) = 0:25
P(Occupied) = 0:45
P(Empty) = 0:55

19. Explain the ethics and risks of artificial intelligence in robotics?

OR

20. What are the different Structure of reflex agents, explain any one structure in detail?